

**WE CLAIM**

1. A method for generating a temporary identifier in a service area of a wireless communication system, said method comprising steps of:
  - 2 initializing an assignment table;
  - 4 maintaining a counter value;
  - 6 hashing said counter value to obtain an assignment table index;
  - 8 searching said assignment table for an available entry;
  - 10 encrypting said counter value to obtain said temporary identifier.
2. The method of claim 1 wherein said service area supports a predetermined number of users.
3. The method of claim 1 wherein said counter value corresponds to a counter of a first predetermined number of bits.
4. The method of claim 3 wherein said encrypting step uses an encryption cipher of a length equal to said first predetermined number of bits.
5. The method of claim 1 wherein said hashing step uses a hash function.
6. The method of claim 1 further comprising a step of storing a subscriber identifier in said available entry.

7. The method of claim 1 further comprising a step of storing said  
2 counter value in said available entry.

8. The method of claim 1 wherein said temporary identifier is a  
2 temporary mobile station identifier.

9. The method of claim 6 wherein said subscriber identifier is an  
2 international mobile subscriber identifier.

10. The method of claim 1 wherein said searching step begins at said  
2 assignment table index.

11. A method for generating a temporary identifier in a service area of a  
2 wireless communication system, said method comprising steps of:  
4 initializing an assignment table;  
6 maintaining a counter value;  
8 hashing said counter value to obtain an assignment table index;  
6 searching said assignment table for an available entry;  
8 encrypting said counter value and said assignment table index to  
obtain said temporary identifier.

12. The method of claim 11 wherein said service area supports a  
2 predetermined number of users.

13. The method of claim 11 wherein said counter value corresponds to  
2 a counter of a first predetermined number of bits.

14. The method of claim 13 wherein said encrypting step uses an  
2 encryption cipher of a length equal to said first predetermined number of bits.

15. The method of claim 11 wherein said hashing step uses a hash  
2 function.

16. The method of claim 11 further comprising a step of storing a  
2 subscriber identifier in said available entry.

17. The method of claim 11 further comprising a step of storing said  
2 counter value in said available entry.

18. The method of claim 11 wherein said temporary identifier is a  
2 temporary mobile station identifier.

19. The method of claim 16 wherein said subscriber identifier is an  
2 international mobile subscriber identifier.

20. The method of claim 11 wherein said searching step begins at said  
2 assignment table index.

21. A wireless communication system comprising:

- 2       means for mobile switching;
- 4       means for registering a visitor location;
- 6       means for storing and assigning a plurality of subscriber identifiers;
- means for maintaining a counter value;
- means for encrypting and generating a temporary identifier.

22. The wireless communication system of claim 21 wherein said means

- 2 for storing and assigning a plurality of subscriber identifiers further comprises
- means for storing a plurality of counter values.

23. The wireless communication system of claim 21 wherein said means

- 2 for storing and assigning a plurality of subscriber identifiers comprises an
- international mobile station identifier.

24. The wireless communication system of claim 21 wherein said

- 2 temporary identifier is a temporary mobile station identifier.

25. The wireless communication system of claim 21 wherein said

- 2 means for encrypting and generating a temporary identifier encrypts said counter
- value.

26. The wireless communication system of claim 21 further comprising  
2 means for performing a hash function.

27. The wireless communication system of claim 26 wherein said  
2 means for performing a hash function is configured to hash said counter value to  
produce an assignment table index.

28. The wireless communication system of claim 27 wherein said  
2 means for encrypting encrypts said assignment table index.

29. A method for generating a temporary identifier in a service area of a  
2 wireless communication system, said method comprising steps of:  
4 initializing an assignment table;  
6 maintaining a counter value;  
8 hashing said counter value to obtain an assignment table index;  
10 searching said assignment table for an available entry;  
12 encrypting said counter value and said assignment table index to  
14 obtain said temporary identifier;  
16 storing a subscriber identifier and said counter value in said available  
18 entry.

30. The method of claim 29 wherein said service area supports a  
2 predetermined number of users.

31 The method of claim 29 wherein said counter value corresponds to  
2 a counter of a first predetermined number of bits.

32. The method of claim 31 wherein said encrypting step uses an  
2 encryption cipher of a length equal to said first predetermined number of bits.

33. The method of claim 29 wherein said hashing step uses a hash  
2 function.

34. The method of claim 29 wherein said temporary identifier is a  
2 temporary mobile station identifier.

35. The method of claim 29 wherein said subscriber identifier is an  
2 international mobile subscriber identifier.

36. The method of claim 29 wherein said searching step begins at said  
2 assignment table index.

37. A computer readable medium including a computer program, said  
2 computer program implementing a method for generating a temporary identifier  
in a service area of a wireless communication system, said computer program  
4 comprising:

a first code segment for initializing an assignment table;

- 6        a second code segment for maintaining a counter value;
- 8        a third code segment for obtaining an assignment table index;
- 10       a fourth code segment for searching said assignment table for an available entry;

10       a fifth code segment for encrypting said counter value to obtain said temporary identifier.

38.      The computer readable medium of claim 37 wherein said fifth code segment comprises an encryption cipher corresponding to said counter value.

39.      The computer readable medium of claim 37 wherein said third code segment comprises a hash function for hashing said counter value to obtain said assignment table index.